

### **REMARKS**

Claims 1-20 are now pending in the application. Claims 1, 9, 12, 16, 18 and 19 have been amended. Claims 7 and 11 have been cancelled. The basis for the foregoing amendments may be found throughout the written description, drawings and claims as originally filed. The Examiner is respectfully requested to reconsider and withdraw the rejection(s) in view of the amendments and remarks contained herein.

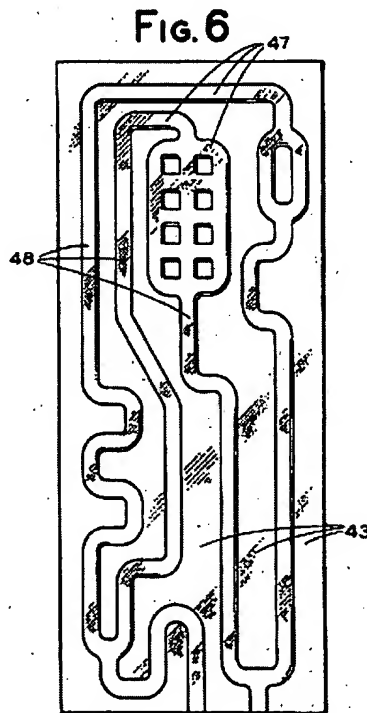
### **REJECTION UNDER 35 U.S.C. § 103**

Claims 1-15 and 18-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's Admitted Prior Art (AAPA) in view of U.S. Pat. No. 2,906,006 (Neel) and U.S. Pat. No. 3,334,398 (Middleton). This rejection is respectfully traversed.

At the outset, Applicants note that claims 1, 9 and 16 have been amended to more clearly define the present invention. Specifically, claims 1 and 9 have been amended to recite "wherein a first fluid flow channel having a defined inlet and outlet is defined on said first outer face". Similarly, claim 16 has been amended to recite "wherein said first, second and third fluid flow channels each provide a defined inlet and outlet, respectively". Applicants direct the Examiners attention to FIGS. 1-3 of the instant disclosure. As described in at least paragraph [0021] of the instant disclosure "the flow channels 18 of the bipolar plate 12 are further defined by an anode flow field 70 disposed on an outer surface of the first plate, (and) a cathode flow field 76 disposed on an outer surface of the second plate...". Fuel is supplied to the cathode and anode sides by plumbing 42 and 44, respectively (FIG. 1). Applicants assert that the art of

record, alone or in combination, fails to teach or suggest a fluid flow channel having a defined inlet and outlet defined on an outer face.

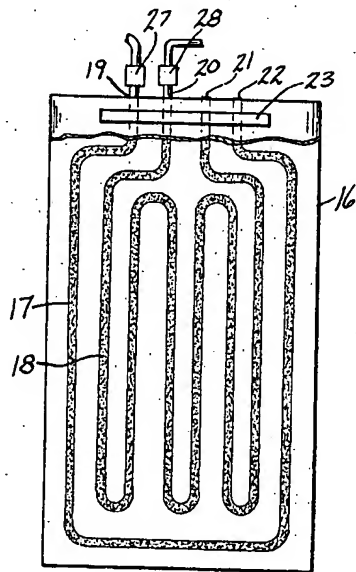
The most recent Office Action characterizes Neel as teaching "a first fluid path is defined on said outer face ... (col. 3, ll. 65-70 and col. 4, ll. 5 – 60)". See page 2. Applicants respectfully traverse this characterization. Applicants maintain that if the structure shown in Neel is to be used as a heat exchanger as described at col. 2, lines 70-75, there cannot be any organized flow across the top face of the structure shown in FIG. 6.



Explained further, there is no channel defined across the top face of Neel suitable to direct fluid from a defined inlet to a defined outlet as claimed in the present invention. Any flow realized across the top surface (or bottom surface) of Neel must be completely randomized. The only flow channel Neel is concerned with is for tubes 47, 48 realized between the sheets 1 and 2. The instant invention provides flow channels on the

respective outer faces such that gas can be communicated across each face from the inlet plumbing to the outlet plumbing, as is necessary in a fuel cell. As shown in FIG. 6 of Neel, no discernable flow channel is realized across the top face (or bottom face) in the areas represented by reference numeral 43.

Middleton shows a first and second sheet having a first and second pattern 17 and 18 each defined therebetween. Middleton does not teach or suggest a fluid flow channel across the top of the structures shown in the figures. Rather, similar to the Neel reference, Middleton only discloses fabrication of flow patterns between the two sheets. See FIG. 4 below.



**FIG - 4**

As with Neel, the structure of Middleton could not support flow channels across the top face because the inherent structure of channels 17 and 18 would preclude an outer face channel having a defined inlet and outlet as specifically recited in the amended independent claims. Therefore, reconsideration and withdrawal of the rejection of claims 1-15 and 18-20 is respectfully requested.

Claims 1-20 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Applicant's Admitted Prior Art (AAPA) in view of U.S. Pat. No. 2,906,006 (Neel) and U.S. Pat. No. 4,080,702 (Chatfield). This rejection is respectfully traversed.

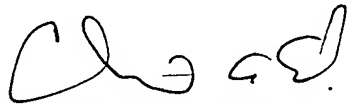
Chatfield shows a method for making a heat exchanger wherein a metal tube is sandwiched between a pair of sheets of metal. The metal tube is subsequently expanded to form an internal passageway. Chatfield does not teach or suggest "a first fluid flow channel having a defined inlet and outlet defined on the first outer face". In addition, Chatfield does not teach or suggest "a first fluid flow channel defined on a first outer face ... and a third fluid flow channel defined on a second outer face". As the references individually or combined do not teach each of the limitations, Applicants respectfully assert the rejections under 35 U.S.C. § 103(a) is improper. Reconsideration and withdrawal of the rejection of claims 1-20 is respectfully requested.

## CONCLUSION

It is believed that all of the stated grounds of rejection have been properly traversed, accommodated, or rendered moot. Applicant therefore respectfully requests that the Examiner reconsider and withdraw all presently outstanding rejections. It is believed that a full and complete response has been made to the outstanding Office Action, and as such, the present application is in condition for allowance. Thus, prompt and favorable consideration of this amendment is respectfully requested. If the Examiner believes that the application is not in condition for allowance, the Examiner is requested to telephone the undersigned at (248) 641-1600.

Respectfully submitted,

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